

A

B

C

D

E

F

VA

A

B

C

D

E

F

VA

0
three inches = one foot
0
one and one half inches = one foot
0
one inch = one foot
0
three quarters inch = one foot
0
one half inch = one foot
0
three eighths inch = one foot
0
one quarter inch = one foot
0
one eighth inch = one foot
0
one sixteenth inch = one foot

VARIABLE FREQUENCY DRIVES				
TAG	SERVICE	ENCLOSURE	NOTES	
AH-1S	AH-1 SUPPLY FAN	SEE SPECIFICATIONS	1,2,3,4	
AH-2S	AH-2 SUPPLY FAN	SEE SPECIFICATIONS	1,2,3,4	
HWP-1	HWP-1	SEE SPECIFICATIONS	1,2,3,4	
HWP-2	HWP-2	SEE SPECIFICATIONS	1,2,3,4	
CWP-1	CWP-1	SEE SPECIFICATIONS	1,2,3,4	
CWP-2	CWP-2	SEE SPECIFICATIONS	1,2,3,4	
CWP-3	CWP-3	SEE SPECIFICATIONS	1,2,3,4	
-	-	-	-	
-	-	-	-	
NOTES: 1. ALL VFD'S TO BE FROM SAME MANUFACTURER. 2. REFER TO EQUIPMENT SCHEDULES FOR MOTOR DATA. 3. FURNISH DRIVE WITH BYPASS 4. FURNISH DRIVE WITH COMMUNICATION INTERFACE.				

DUCT CONSTRUCTION/SEALING				
DUCT SYSTEM		SMACNA SP CONST.	SEAL CL.	NOTES
MEDIUM VELOCITY SUPPLY		+3"	A	-
LOW VELOCITY SUPPLY		+1"	B	-
RETURN / RELIEF		-1"	C	-
GENERAL EXHAUST		-0.5"	C	-
OUTSIDE AIR		-0.5"	C	-
-		-	-	-
-		-	-	-
-		-	-	-
NOTES 1.				

LOUVERS									
TAG	SERVICE	SIZE DP W H	CFM	P.D. IN	F.A. SQ. FT	NOTES			
L-1	RELIEF	4" 44" 44"	7600	0.11	8.33	1,2,3,4,6			
L-2	INTAKE	4" 44" 44"	7600	0.11	8.33	1,2,3,4,6			
L-3	RELIEF	4" 44" 44"	7600	0.11	8.33	1,2,3,4,6			
L-4	INTAKE	4" 44" 44"	7600	0.11	8.33	1,2,3,4,6			
L-5	EXHAUST	1.5" 12" 12"	225	0.01	0.37	1,2,3,4,5			
L-6	EXHAUST	1.5" 12" 12"	75	0.01	0.37	1,2,3,4,5			
L-7	EXHAUST	1.5" 12" 12"	150	0.01	0.37	1,2,3,4,5			
L-8	EXHAUST	1.5" 12" 12"	150	0.01	0.37	1,2,3,4,5			
L-9	EXHAUST	1.5" 12" 12"	75	0.01	0.37	1,2,3,4,5			
L-10	EXHAUST	1.5" 12" 12"	225	0.01	0.37	1,2,3,4,5			
-	-	-	-	-	-	-			

1. CONTRACTOR SHALL PROVIDE INSULATED SHEETMETAL PLENUM BEHIND ALL LOUVERS.
2. COLOR OF LOUVER SELECTED BY THE OWNER.
3. CONTRACTOR TO FIELD/VERIFY EXISTING OPENING SIZE. ADJUST LOUVER SIZE TO MATCH EXISTING OPENING SIZE.
4. PROVIDE BIRDSCREEN.
5. PROVIDE MOTORIZED DAMPER. WIRE TO OPEN WHEN THE ASSOCIATED FAN OPERATES
6. PROVIDE MOTORIZED DAMPER. WIRE TO ASSOCIATED AIR HANDLER CONTROLS.

FANS														
FAN TYPES: PRV - POWER ROOF VENTILATOR IL - INLINE CENTRIFUGAL ILD - INLINE DUCT BLOWER CE - CEILING MOUNTED EXHAUST					US - UTILITY SET SWV - SIDEWALL VENTILATOR PF5F - PENTHOUSE FILTERED SUPPLY FAN URB - UP-BLAST EXHAUSTER					PF - PLENUM FAN SWP - SIDEWALL PROPELLER HPRE - HOODED PROPELLER ROOF EXHAUSTER				
TAG	TYPE	SERVICE / LOCATION	CFM	ESP (IN)	MAX SONES	WHEEL (DAIN)	RPM	MOTOR DATA (HP/WATTS) VOLTAGE PHASE	MFG.	MODEL	FAN CONTROL	REQ'D ACCY		
EF-1	CE	RESTROOM/GRD FLR	225	0.5	2.0	AS REQ'D	1025	(101)	120	1	-	41	1,2,8,14,18	
EF-2	CE	WEM. RR/1ST FLR	75	0.5	2.0	AS REQ'D	923	(67)	120	1	-	41	1,2,8,14,18	
EF-3	CE	MEN. RR/1ST FLR	150	0.5	3.5	AS REQ'D	1230	(114)	120	1	-	41	1,2,8,14,18	
EF-4	CE	WEM. RR/2ND FLR	75	0.5	2.0	AS REQ'D	923	(67)	120	1	-	41	1,2,8,14,18	
EF-5	CE	MEN. RR/2ND FLR	225	0.5	2.0	AS REQ'D	1025	(101)	120	1	-	41	1,2,8,14,18	
EF-6	CE	HAC/1ST FLR	75	0.5	2.0	AS REQ'D	923	(67)	120	1	-	41	1,2,8,14,18	
EF-7	CE	HAC/2ND FLR	75	0.5	2.0	AS REQ'D	923	(67)	120	1	-	41	1,2,8,14,18	
EF-8	SWP	TRANSFORMER RM/GRD FLR	712	0.1	7.7	AS REQ'D	1550	0.05	120	1	-	31	1,7,16,17	
EF-9	CE	RESTROOM/RM 109AA	75	0.5	2.0	AS REQ'D	923	(67)	120	1	-	41	1,2,8,14,18	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- REQ'D ACCY:
1. STANDARD DISCONNECT, FACTORY MOUNTED & WIRE
2. GRAVITY BACKDRAFT DAMPER
3. INLET/OUTLET FLEX DUCT FLANGES
4. SPRING ISOLATORS
5. STANDARD FINISH, COLOR BY ARCHITECT
6. BAKED ENAMEL FINISH, COLOR BY ARCHITECT
7. INLET GUARD
8. 8-1/2 VIBRATION ISOLATION HANGERS
9-14" HIGH INSULATED ROOF CURB, COORDINATE WITH STRUCTURAL & GC WORK. ROOF CURB TO MATCH ROOF SLOPE.
10. HINGED BASE
11. UL 762 LISTING
12. GREASE TERMINATOR
13. STAINLESS STEEL BIRDSCREEN
14. ELECTRONIC SPEED CONTROLLER
15. LOCKABLE DISCONNECT, FACTORY MOUNTED AND WIRE
16. GRAVITY SHUTTER
17. SHUTTER GUARD
18. WHITE ALUMINUM GRILLE
- FAN CONTROL:
PROVIDED BY BAS CONTRACTOR:
21. TIME SCHEDULED DDC ON/OFF
22. WALL MOUNTED DDC SPACE SENSOR
23. WALL MOUNTED THERMOSTAT - MOUNTED & WIRE BY EC
24. UNIT MOUNTED THERMOSTAT - MOUNTED & WIRE BY EC
25. HARDWIRE INTERLOCK ASSOCIATED MOTORIZED DAMPER WITH FAN
26. HARDWIRE INTERLOCK FAN TO REFRIGERANT MONITOR PANEL
- FAN CONTROL:
PROVIDED BY EC:
41. WALL MOUNTED SWITCH
42. WALL MOUNTED ELECTRONIC TIMER
- PROVIDED BY HC WITH UNIT:
31. WALL MOUNTED THERMOSTAT - MOUNTED & WIRE BY EC
32. UNIT MOUNTED THERMOSTAT - MOUNTED & WIRE BY EC
33. INTEGRAL THERMOSTAT - FACTORY MOUNTED & WIRE

HYDRONIC HEATING UNITS														
- HEATING CAPACITY BASED ON 60°F ENT AIR & 200°F ENT WATER, 170°F LWT														
TAG	DESCRIPTION	MOUNTING	ELECTRICAL DATA VOLTS PHASE	HP	CFM	CAPY BTU/hr	GPM	RUNOUT SIZE (IN)	PD FT	MFG.	MODEL	REQ'D ACCESS		
CUH-1	CABINET UNIT HEATER LOBBY	CEILING CONCEALED	120	1	1/10	430	29,800	2.98	3/4	1.00	-	-	5.2	
CUH-2	CABINET UNIT HEATER MECHANICAL ROOM	FLOOR MOUNTED	120	1	1/15	230	16,400	1.64	3/4	0.20	-	-	1.4	
CUH-3	CABINET UNIT HEATER MECHANICAL ROOM	FLOOR MOUNTED	120	1	1/15	230	16,400	1.64	3/4	0.20	-	-	1.4	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

- REQ'D ACCY:
1. UNIT MOUNTED ADJUSTABLE LINE VOLTAGE THERMOSTAT WITH GRADUATED DIAL
2. WALL MOUNTED THERMOSTAT
3. STANDARD COIL
4. TOP OUTLET GRILLE AND BOTTOM INLET GRILLE
5. FRONT OUTLET, BACK INLET
6. HORIZONTAL VANE DISCHARGE
7. UNIT MOUNTED LINE VOLTAGE THERMOSTAT FURNISHED WITH UNIT.

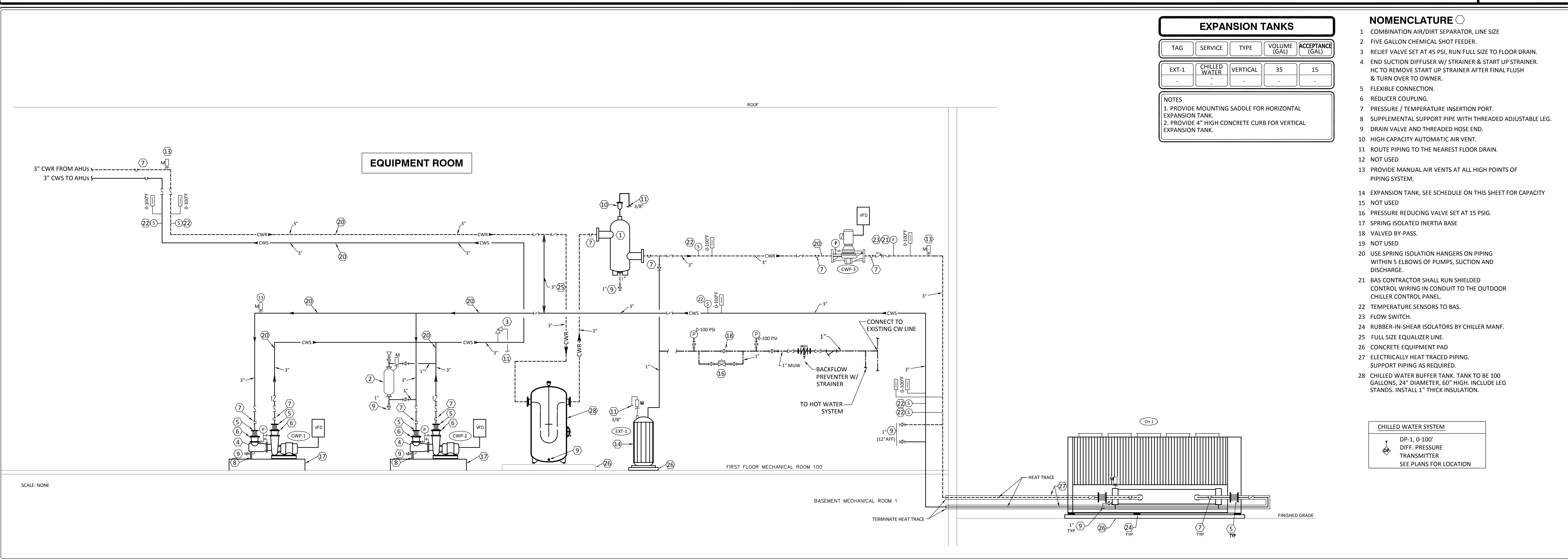
STEAM PRESSURE REDUCING VALVE AND RELIEF VALVE														
STEAM PRESSURE REDUCING VALVE						RELIEF VALVE								
TAG	INLET PRESSURE (PSI)	OUTLET PRESS (PSI)	CAP'Y lb/hr	VALVE SIZE (IN)	REQUIRED CV	REQ'D ACCESS		VALVE SIZE (IN)	RELIEF PRESSURE SETTING (PSI)	CAP'Y lb/hr				
PRV-1	125	30	1100	1	4.61	1,2		2	36	1785				
-	-	-	-	-	-	-		-	-	-				
-	-	-	-	-	-	-		-	-	-				
-	-	-	-	-	-	-		-	-	-				
REQ'D ACCESS (INCLUDE ALL): 1. INCLUDE EXTERNAL STEAM PILOT CAPABLE OF +/- 1% ACCURACY. 2. NOISE LEVEL TO BE MAX. 85 DB.														

HYDRONIC FINNED TUBE														
- 200°F ENT WATER TEMPERATURE - 170°F LWC WATER TEMPERATURE														
TAG	DESCRIPTION	FIN SIZE (IN)	TIERS	FINS PER FOOT	TUBE SIZE (IN)	CAPY LIN FT	MOUNT HEIGHT	ENCLOSURE (IN) DEPTH	LENGTH OF ELEMENT	MODEL	REQ'D ACCESS			
FT-1	FINNED TUBE	4-1/4	1	50	3/4	1190	4	5-1/4	12	3'-0"	-	ALL		
FT-2	FINNED TUBE	4-1/4	1	50	3/4	1190	4	5-1/4	12	3'-0"	-	ALL		
FT-3	FINNED TUBE	4-1/4	1	50	3/4	1190	4	5-1/4	12	3'-0"	-	ALL		
FT-4	FINNED TUBE	4-1/4	1	50	3/4	1190	4	5-1/4	12	3'-0"	-	ALL		
FT-5	FINNED TUBE	4-1/4	1	50	3/4	1190	4	5-1/4	12	3'-0"	-	ALL		
FT-6	FINNED TUBE	4-1/4	1	50	3/4	1190	4	5-1/4	12	3'-0"	-	ALL		
FT-7	FINNED TUBE	4-1/4	1	50	3/4	1190	4	5-1/4	12	3'-0"	-	ALL		
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REQ'D ACCESS 1. SLOPE TOP ENCLOSURE. 2. 3-WAY CONTROL VALVE 3. ROOM THERMOSAT														

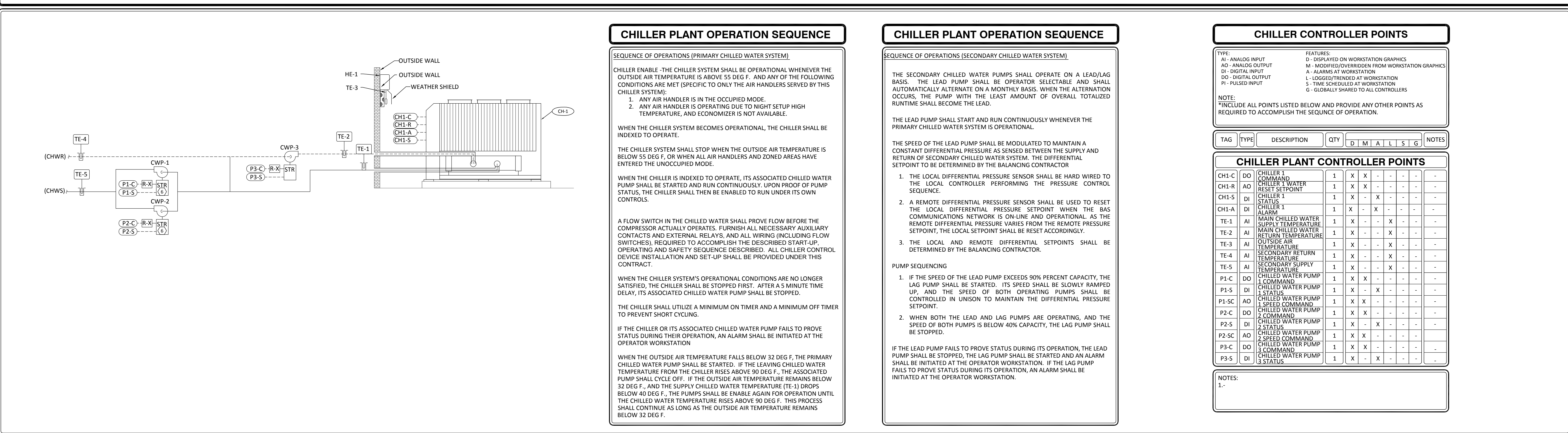
AIR TERMINAL UNITS - MASTER SCHEDULE																
- TYPES: VAV-# - VARIABLE AIR VOLUME CAV-# - CONSTANT AIR VOLUME TYPE: SINGLE DUCT, W/ INTEGRAL REHEAT COIL AND "FIBER-FREE" INSULATION LINER. DAMPER SHAFT AND CONTROL ENCLOSURE.										- REHEAT COIL BASED ON: HTG MAX AIRFLOW, 200°F EWT AND 55°F EAT						
TYPE	INLET SIZE (IN)	MODEL NO.	AIR FLOW (CFM)			SP (IN WC) DOWN STREAM			SOUND MAX (NC)		MIN LAT (F)		H/W REHEAT COIL RUN OUT MAX WTR PD (FT) HD		MAX AIR FLOW (GPM)	ROWS
			CLG MAX	MIN	HTG MAX	INLET	DOWN STREAM	MIN	RAD	DISCH	95.0	GPM	95.0	10.0		
VAV-5	5	-	300	65	180	1	0.25	0.11	25	25	95.0	1.0	3/4	5.0	0.5	1
VAV-6	6	-	400	80	240	1	0.25	0.35	25	25	95.0	1.0	3/4	5.0	0.5	2
VAV-8	8	-	700	145	420	1	0.25	0.38	25	25	95.0	1.0	3/4	5.0	0.5	2
VAV-10	10	-	1,100	230	660	1	0.25	0.42	25	25	95.0	2.0	3/4	5.0	0.5	2
VAV-12	12	-	1,500	325	900	1	0.25	0.42	25	25	95.0	2.5	3/4	5.0	0.5	2
VAV-14	14	-	2,200	450	1,320	1	0.25	0.45	25	25	95.0	3.5	1	5.0	0.5	2
VAV-16	16	-	2,800	580	1,680	1	0.25	0.48	25	25	95.0	5.0	1	5.0	0.65	2
VAV-24	24 x 16	-	5,000	1,400	3,000	1	0.25	0.70	40	30	95.0	8.0	1-1/4	5.0	0.65	2
CAV-5	5	-	300	300	300	1	0.25	0.18	25	25	95.0	1.0	3/4	5.0	0.5	2
CAV-6	6	-	400	400	400	1	0.25	0.35	25	25	95.0	1.0	3/4	5.0	0.5	2
CAV-8	8	-	700	700	700	1	0.25	0.38	25	25	95.0	2.0	3/4	5.0	0.5	2
CAV-10	10	-	1,100	1,100	1,100	1	0.25	0.42	25	25	95.0	3.0	3/4	5.0	0.5	2
CAV-12	12	-	1,500	1,500	1,500	1	0.25	0.42	25	25	95.0	4.0	1	5.0	0.5	2
CAV-14	14	-	2,200	2,200	2,200	1	0.25	0.45	25	25	95.0	6.0	1	5.0	0.5	2
CAV-16	16	-	2,800	2,800	2,800	1	0.25	0.70	25	25	95.0	7.0	1-1/4	5.0	0.65	2
CAV-24	24 x 16	-	5,000	5,000	5,000	1	0.25	0.70	40	30	94.0	10.0	1-1/4	5.0	0.65	2
NOTES:																
1. ROOM NC LEVEL SHOWN INCLUDES ATTENUATION TRANSFER FUNCTIONS OBTAINED FROM TABLES IN ARI STANDARD 885-98.																
2. SOUND DATA SHALL BE OBTAINED FROM TESTS CONDUCTED IN ACCORDANCE WITH ARI STANDARD 880-98.																
3. SOUND LEVELS INDICATED ARE MAXIMUM VALUES. MANUFACTURERS TO PROVIDE "FIBER-FREE" SOUND ATTENUATORS AS REQUIRED TO MEET REQUIREMENTS.																

CHILLED WATER PIPING SCHEMATIC

XX



CHILLED WATER CONTROLS



DESIGNER/ENGINEER: SS
CAD OPERATOR: SS
QA/QC CHECKER: SS

95% OWNER REVIEW DOCUMENTS
ISSUED FOR BID DOCUMENTS

01/18/2013
01/31/2013

Dynamix Engineering Ltd.
Facility Engineering Consultants
855 Grandview Avenue, 3rd Floor Columbus, Ohio 43215
Phone: (614)443-1178 · Fax: (614)443-1594 · Email: dynamix@dynamix-ltd.com
Comm. No.: 120050



Revised By:

Drawing Title
HVAC SCHEDULES AND DETAILS

Approved: Project Engineer
Philip Kirk

Project Title
MODERNIZE HVAC, B-115

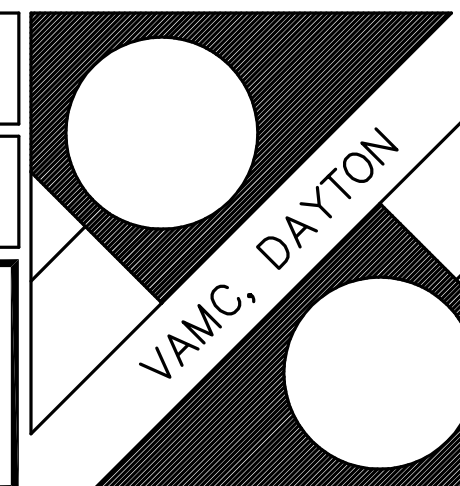
Building Number
B-115 115

Location
4100 WEST THIRD ST
DAYTON, OH 45428

Date
01-31-2013

Project No.
552-13-301

Drawing No.
M03



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